

*Subb A2*

1        1. A method for treating a bone defect comprising:  
2              identifying a bone site suitable for receiving an implant; and  
3              introducing a strongly resorbable, poorly crystalline apatitic calcium phosphate  
4              at the implant site, whereby bone is formed at the implant site.

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6        2. A method for treating a bone defect, comprising:  
7              identifying a bone site suitable for receiving an implant; and  
8              introducing a hydrated precursor to a strongly resorbable, poorly crystalline  
9              apatitic calcium phosphate at the implant site, whereby the hydrated precursor is  
10          converted *in vivo* to a poorly crystalline apatitic calcium phosphate and whereby bone  
11          is formed at the implant site.

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13        3. The method of claim 1, wherein the poorly crystalline apatitic calcium  
14          phosphate is introduced in the form selected from the group consisting of paste, putty  
15          and preshaped object.

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17        4. The method of claim 2, wherein the hydrated precursor is introduced  
18          in the form selected from the group consisting of paste and putty.

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20        5. The method of claim 3 or 4, characterized in that, said paste is  
21          injectable for a time greater than about 10 minutes at about 25 °C, hardens within  
22          about 10 to 60 minutes at about 37 °C.

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24        6. The method of claim 1, wherein said poorly crystalline apatitic calcium  
25          phosphate has x-ray diffraction substantially as shown in Figure 3a.

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27        7. The method of claim 1, wherein the strongly bioresorbable, poorly  
28          crystalline apatitic calcium phosphate has an X-ray diffraction pattern comprising  
29          broad peaks at 2θ values of 26°, 28.5°, 32° and 33°.

1       8.     The method of claim 1, wherein the strongly bioresorbable, poorly  
2     crystalline apatitic calcium phosphate is characterized in that, when placed in a rat  
3     intramuscular site, resorption of at least 1 g of the material is at least 80% resorbed  
4     within one year.

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6       9.     The method of claim 1, wherein the strongly bioresorbable, poorly  
7     crystalline apatitic calcium phosphate is characterized in that, when placed in a rat  
8     intramuscular site, resorption of at least 1 g of the material is at least 80% resorbed  
9     within one month.

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11      10.    The method of claim 1 or 2, wherein the implant site comprises a tooth  
12     socket.

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14      11.    The method of claim 1 or 2, wherein the implant site comprises a non-  
15     union bone.

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17      12.    The method of claim 1 or 2, wherein the implant site comprises a bone  
18     prosthesis.

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20      13.    The method of claim 1 or 2, wherein the implant site comprises an  
21     osteoporotic bone.

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23      14.    The method of claim 1 or 2, wherein the implant site comprises an  
24     intervertebral space.

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26      15.    The method of claim 1 or 2, wherein the implant site comprises a  
27     alveolar ridge.

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1 16. The method of claim 1 or 2, wherein the implant site comprises a bone  
2 fracture.  
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5 17. A method of preparing a ceramic implant, comprising:  
6 mixing in any order,  
7 (a) a reactive amorphous calcium phosphate,  
8 (b) a second calcium phosphate, the second calcium phosphate and the reactive  
9 amorphous calcium phosphate in a proportion to form an apatitic calcium phosphate,  
10 and  
11 (c) a physiological liquid, said liquid in the amount to provide a paste or putty;  
12 and  
13 introducing the paste or putty into an implant site.

14 18. The method of claim 17, wherein the reaction is carried out at no  
15 greater than about 37 °C.

16  
17 19. The method of claim 17, wherein the fluid selected from the group  
18 consisting of water, a physiologically acceptable pH-buffered solution, saline solution,  
19 serum and tissue culture medium.

20  
21 20. The method of claim 17, wherein the paste or putty is injected into the  
22 implant site.

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24 add  
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